

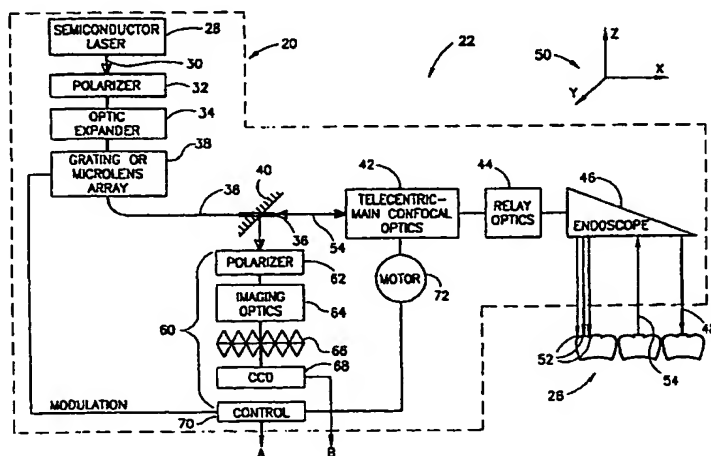
**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : <b>G01B 11/24, A61C 13/00, 19/04</b>		A1	(11) International Publication Number: <b>WO 00/08415</b>
			(43) International Publication Date: 17 February 2000 (17.02.00)
(21) International Application Number: <b>PCT/IL99/00431</b>			(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
(22) International Filing Date: <b>5 August 1999 (05.08.99)</b>			
(30) Priority Data: <b>125659 5 August 1998 (05.08.98) IL</b>			
(71) Applicant (for all designated States except US): <b>CADENT LTD. [IL/IL]; Hamelacha Street 14, 60372 Or Yehuda (IL).</b>			
(72) Inventors; and (75) Inventors/Applicants (for US only): <b>BABAYOFF, Noam [IL/IL]; Laskov Street 25, 58672 Holon (IL). GLASER-INBARI, Isaia [IL/IL]; Hashnayim Street 24, 53230 Givataim (IL).</b>			
(74) Agent: <b>REINHOLD COHN AND PARTNERS; P.O. Box 4060, 61040 Tel-Aviv (IL).</b>			

**Published***With international search report.**Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

(54) Title: IMAGING A THREE-DIMENSIONAL STRUCTURE BY CONFOCAL FOCUSING AN ARRAY OF LIGHT BEAMS



## (57) Abstract

Determining surface topology of a portion (26) of a three-dimensional structure is provided. An array of incident light beams (36) passing through a focusing optics (42) and a probing face is shone on said portion. The focusing optics defines one or more focal planes forward the probing face in a position which can be changed (72) by the focusing optics. The beams generate illuminated spots (52) on the structure and the intensity of returning light rays propagating in an optical path opposite to that of the incident light rays is measured (60) at various positions of the focal plane(s). By determining spot-specific positions yielding a maximum intensity of the returned light beams, data is generated which is representative of said topology. Measurement of teeth. Light beams by grating of matrix of pinholes, micro lens array. Simultaneous imaging from three angles. Quicker with three different light components.